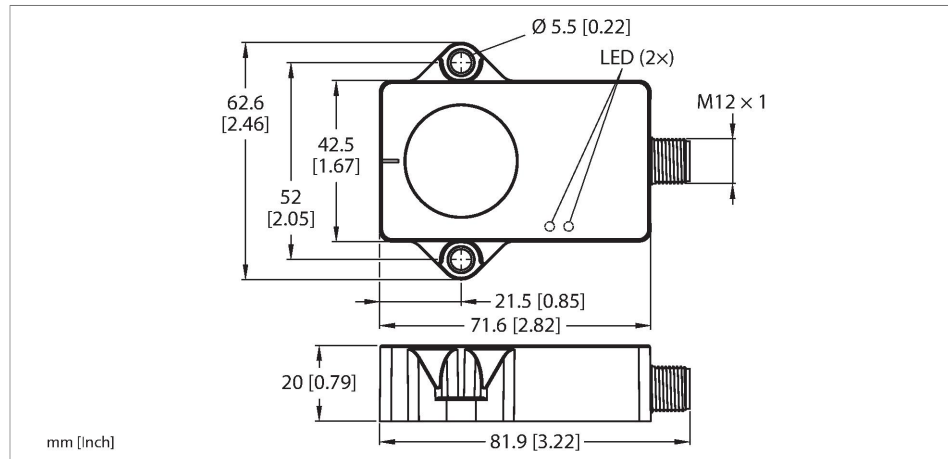


B1NF360V-QR20-2LUX3-H1151

Dynamic Inclinometer – With Analog Outputs



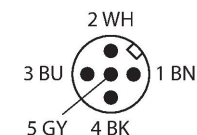
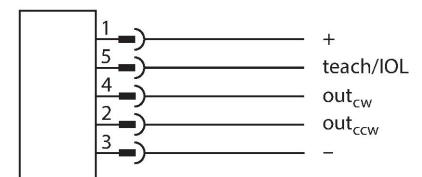
Technical data

Type	B1NF360V-QR20-2LUX3-H1151
ID	100030756
Measuring principle	Combination of gyroscopes and accelerometers
General data	
Resolution	16 bit
Measuring range	0...360 °
Number of measuring axes	1
Repeat accuracy	≤ 0.03 % of full scale
Linearity deviation	≤ 0.15 %
Temperature drift	≤ ± 0.006 %/K
Electrical data	
Operating voltage U_B	15...30 VDC
Ripple U_{rs}	≤ 10 % U_{Bmax}
Isolation test voltage	0.5 kV
Short-circuit protection	yes
Wire break/reverse polarity protection	yes/yes
Output function	5-pin, Analog output
Voltage output	0...10 V
Load resistance voltage output	≥ 4.7 kΩ
Load resistance current output	≤ 0.4 kΩ
Current consumption	< 80 mA
Mechanical data	
Design	Rectangular, QR20

Features

- Rectangular, plastic, Ultem
- Status displayed via LED
- Angle detection via one axis with 360 ° measuring range
- High protection class IP68/IP69K
- Protected against salt spray and rapid temperature change
- 15...30 VDC
- M12 × 1 male connector, 5-pin
- Two counter-running 0...10 V analog outputs improve machine safety through redundancy
- The start, end and center point of the measuring range can be adjusted using teach adaptor TX1-Q20L60
- Individual parameterization possible with USB-2-IOL-0002

Wiring diagram



Functional principle

Technical data

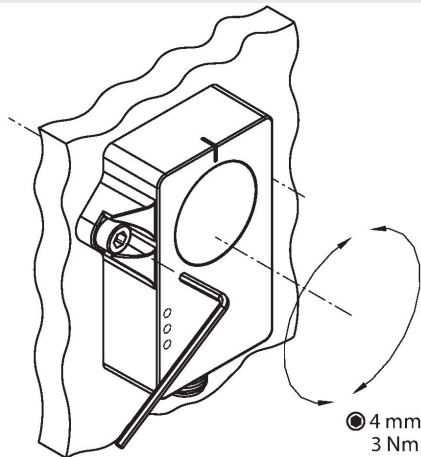
Dimensions	71.6 x 62.6 x 20 mm
Housing material	Plastic, Ultem
Electrical connection	Connector, M12 × 1
Environmental conditions	
Ambient temperature	-40...+85 °C
Temperature changes (EN60068-2-14)	-40... +85 °C; 20 cycles
Vibration resistance (EN 60068-2-6)	20 g; 5 h/axis; 3 axes
Shock resistance (EN 60068-2-27)	200 g; 4 ms ½ sine
Protection class	IP68 IP69K
MTTF	297 years acc. to SN 29500 (Ed. 99) 40 °C
Power-on indication	LED, Green
Measuring range display	LED, yellow
UL certificate	E351232

The dynamic inclinometers use an acceleration measuring cell and a gyroscope sensor to determine angles. Influences caused by vibrations or interfering acceleration are minimized by applying an intelligent fusion algorithm to the acceleration data and the rotation rate values. This enables the sensor to output a robust signal with impressive precision and speed, even in moving, dynamic applications.

The robust sensors are positioned with the cast side on a flat surface so that the casting compound is covered. The sensor is then secured with two screws.

Mounting instructions

Mounting instructions/Description



The measuring principle used makes mounting and commissioning the device easy, e.g. because being adjacent to metal does not interfere with the measuring principle. A green LED indicates whether the sensor is being properly supplied with power. The green flashing LED indicates that FDT/IODD communication is active. One yellow LED per inclination axis acts as a zero-position indicator to aid commissioning. It is constantly illuminated when the position of the inclinometer is within a window of $\pm 0.5^\circ$ around the center point. The LED flashes with increasing frequency the nearer the sensor gets to the center point position. In the factory setting, the center point is in an inclination position with the connector pointing downward.

Activation of the teach process

	Bridge between pin 5 and pin 1	LED green	LED yellow
Activate teaching	Before switching on the supply voltage, set the teach bridge, then switch on the voltage, then remove the bridge immediately after starting the sensor	Teach process active: 700 ms/100 ms	
The teach process is automatically deactivated after 30 s. The yellow CENTER LED and the green LED flash alternately and then return to normal operation.			

Teach sequence for center point, measuring range start and end

	Bridge between pin 5 and pin 1	LED green	LED yellow
Activate sequence*	Set bridge for 2...8 s	After 2 s of flashing at 1 Hz	
Set center point**	Bridge for 2...8 s		After 2 s of flashing at 1 Hz
Set start of measuring range**	Bridge for 8...14 s		After 8 s of flashing at 2 Hz
Set end of measuring range**	Bridge for 14...20 s		After 14 s of flashing at 4 Hz

Factory setting

	Bridge between pin 5 and pin 1	LED green	LED yellow
Activate sequence for factory settings*	Bridge for 8...14 s	After 2 s of flashing at 2 Hz	
Reset to factory settings**	Bridge for 2...8 s		After 2 s of flashing at 1 Hz

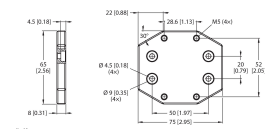
*Teach sequence remains active for 30 s, then returns to normal operation

**After the center point/measuring range/factory settings have been established, the teach sequence ends and automatically returns to the activated teach process

Accessories

AP-Q20L60-QR20

100029224



Adapter plate for mounting the QR20 housing with mounting holes for the Q20L60 housing

Wiring accessories

Dimension drawing	Type	ID	
	RKC5.301T-1.5-RSC4T/TXL320	6625005	Adapter cable (for uses such as connecting the sensor to the USB-2-IOL-0002 programming unit); M12 female connector, straight, 5-pin to M12 male connector, straight, 3-pin; cable length: 1.5 m; jacket material: PUR, black; cULus approved; RoHS compliant; protection class IP67